



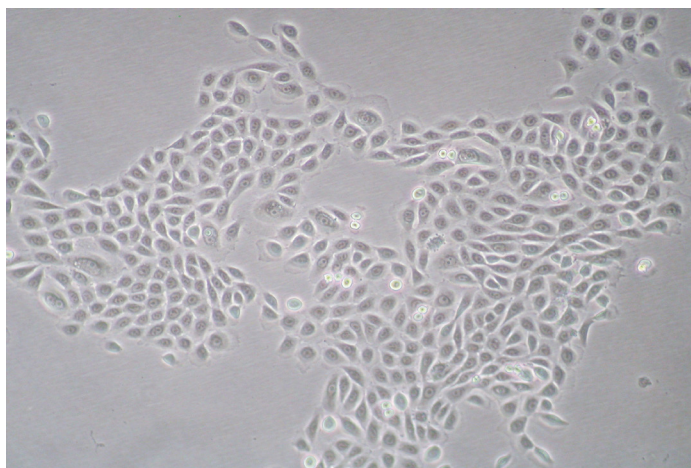
## Identifying Antioxidant Compounds for Personal Care and Cosmetic Product Development

### Objective

Accumulation of reactive oxygen species (ROS) in epidermal keratinocytes can cause oxidative stress and premature skin aging. To identify compounds which can prevent free radical buildup and/or treat oxidative stress inducers, MatTek's Normal Human Epidermal Keratinocytes (NHEKs) were used to screen potential antioxidants.

### Methods

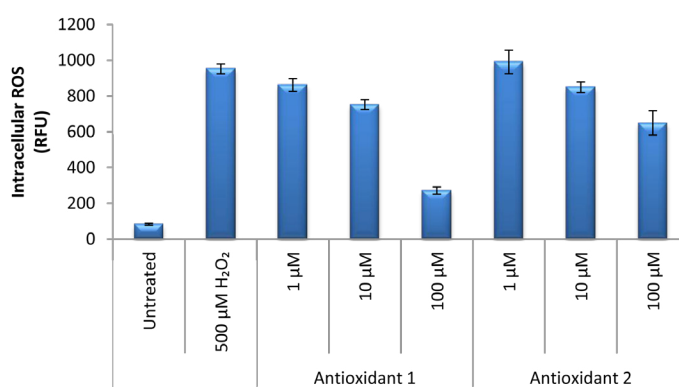
- MatTek's NHEKs (NHEK-CRY-AD) were cultured in NHEK Growth Medium (NHEK-GM) according to manufacturer's protocol (**Figure 1**).
- Cells were pre-treated with increasing concentrations of potential antioxidants for 24 hours.
- Cells were incubated with 100 $\mu$ M of 2',7'-dichlorodihydro- fluorescein diacetate (DCFH-DA, 10 $\mu$ M) for 1 hour.
- Intracellular ROS was induced by a 1 hour incubation with 500  $\mu$ M H<sub>2</sub>O<sub>2</sub>.
- Fluorimetric measurements of 2',7'-dichlorodihydro- fluorescein (DCF) levels, generated by ROS, were determined and compared to control (**Figure 2**).



**Figure 1.** MatTek's Adult Normal Human Epidermal Keratinocytes (NHEK-CRY-AD), 10x Magnification.

### Results

NHEKs treated with either Antioxidant 1 or Antioxidant 2 showed dose-dependent decreases in intracellular reactive oxygen species following induction by H<sub>2</sub>O<sub>2</sub>.



**Figure 2.** MatTek's Normal Human Epidermal Keratinocytes (NHEK-CRY-AD) were treated with increasing concentrations of antioxidant test compounds for 24 hours and then exposed to 500  $\mu$ M H<sub>2</sub>O<sub>2</sub>. Significant decreases in intracellular ROS levels were observed with increased concentrations of Antioxidant 1 and Antioxidant 2.

### Conclusions

MatTek's Normal Human Epidermal Keratinocytes can be used to identify antioxidant compounds for personal care and cosmetic product development.

